

CLAIMS

WHAT IS CLAIMED IS:

1. An electrode for intravascular stimulation, cardioversion and/or defibrillation in the form of a stimulation probe which can be fixed in arterial/venous vessels of the body and by way of which electrical or magnetic pulses and defibrillation/cardioversion shocks can be delivered, which is provided with a feed line, characterised in that there is provided a metallic, electrically conductive, tubular wire unit which adjoins the feed line in the axial direction and which forms an expansion body and which can be deployed in the corresponding vessel and which under expansion bears from the interior against the wall of the vessel.

2. An electrode as set forth in claim 1 characterised in that provided as a drive means for expansion in the interior of the wire unit which is plastically deformable is a pneumatically or hydraulically inflatable balloon body.

3. An electrode as set forth in claim 1 characterised in that the wire unit is resilient and surrounded by a compression sleeve, wherein expansion of the wire body occurs automatically due to removal of a compression sleeve (self-expansion) from the wire unit in a pre-stressed compressed condition.

4. An electrode as set forth in one of claims 1 through 3 characterised in that the entire surface of the wire unit or one or more electrically mutually insulated portions thereof are in the form of a unipolar, bipolar or multipolar stimulation pole.

5. An electrode as set forth in one of claims 1 through 4 characterised in that the wire unit is in the nature of a cylindrical coil.

6. An electrode as set forth in claim 5 characterised in that the cylindrical coil includes a plurality of electrically mutually insulated coil portions.

7. An electrode as set forth in claim 5 or claim 6 characterised in that there is provided an induction unit by means of which the electrode can be inductively supplied with voltage.

8. An electrode as set forth in one of claims 1 through 7 characterised in that the diameter of the wire unit changes in the longitudinal direction.

9. An electrode as set forth in claim 8 characterised in that the wire unit is of a conical configuration for insertion into the proximal coronary sinus.

10. An electrode as set forth in one of claims 1 through 9 characterised in that the surface is coated with a medicament, in particular with a substance for preventing vessel damage.

11. An electrode as set forth in claim 7 characterised in that there is provided an induction unit by means of which the electrode is inductively heatable.

12. An electrode as set forth in one of the preceding claims characterised in that a further portion of the feed line, which portion extends in the longitudinal direction parallel at least to a portion of the wire unit, extends in the form of an insulated region within the cylindrical wall region produced by the wire unit, or outside the wire unit.

13. An electrode as set forth in one of the preceding claims characterised in that there is provided a control unit which produces control signals for one or more of the following uses and which is electrically conducted to the wire unit:

- Stimulation of parasympathetic autonomous nerve fibers for reducing the atrial and ventricular frequency in the case of tachycardial dysrhythmia phenomena, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena jugularis interna or externa, the superior

vena cava, the proximal coronary sinus or the inferior vena cava at the boundary to the right atrium.

- Stimulation of autonomous nerve fibers for improving the coronary artery blood supply, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena jugularis interna or externa and in the coronary sinus.

- Stimulation of sympathetic autonomous nerve fibers for the treatment of arterial hypotonia and heart pumping weakness in a case of acute and chronic heart insufficiency, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena subclavia, the pulmonary veins or the aorta.

- Stimulation of sympathetic autonomous nerve fibers for the treatment of arterial hypotonia and bradycardia in the case of neuro-cardiogenic syncope, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena subclavia, the pulmonary veins or the aorta.

- Stimulation of parasympathetic autonomous nerve fibers for the treatment of tachycardial ventricular dysrhythmias, wherein implantation of the wire unit forming an expansion body is implemented in the coronary sinus or the pulmonary artery.

- Stimulation of parasympathetic nerves which innervate the atria for preventing an atrial remodelling process, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena jugularis interna or externa, the superior vena cava or the right pulmonary artery.

- Stimulation of parasympathetic nerves which innervate the atria/ventricles for a reduction in the atrial/ventricular defibrillation threshold, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena jugularis interna or externa, the superior vena cava or the right pulmonary artery.

- Stimulation of autonomous parasympathetic nerve fibers for the treatment of cerebral convulsions (epilepsy), wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena jugularis interna or externa.

- Stimulation of the carotid sinus nerves for the treatment of angina pectoris complaints, wherein implantation of the wire unit forming an expansion body is implemented in the arteria/vena jugularis interna or externa.

- Stimulation of autonomous nerves which regulate gastro-intestinal and bladder motility and control male erection, wherein implantation of the wire unit forming an expansion body is implemented in the inferior vena cava and the feeds thereto, the aorta abdominalis and the outflows therefrom or the arterial and venous iliac vessels.

- High-frequency, sub-threshold electrical stimulation of the ventricular myocardium for the promotion of angiogenesis after cardiac infarcts or myocardial blood supply disturbances, wherein implantation of the wire item electrodes forming an expansion body is implemented in the coronary arteries or the coronary sinus and its feeds.

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